

# Chapter 7 Study Sheet

system of linear equations: two or more linear equations that can be graphed on the same coordinate plane

Three Possible Solutions to Systems of Linear Equations (and when they occur):

- 1) No solution - happens when there are two or more parallel lines that never intersect
- 2) Infinitely many solutions - it is the same line
- 3) One solution - intersecting lines

To Solve Systems via Graphing:

- 1) Graph each linear equation
- 2) find/examine the intersection
- 3) write the solution as a COORDINATE, no solution, or infinitely many solutions (explain why or include a reason)
- 4) CHECK via SUBSTITUTION

To Solve Systems via Substitution:

- 1) examine the two equations
- 2) isolate a variable in one of the equations
- 3) SUBSTITUTE the expression into the other equation
- 4) SOLVE
- 5) Solve for the OTHER variable using substitution
- 6) Write your answer as a COORDINATE, if possible
- 7) CHECK your answer using substitution

To Solve Systems via Elimination:

- 1) Examine the equations
- 2) look for same coefficient and different signs - if you can't eliminate right away, do this:
  - a) if you have same coefficient and same sign, multiply one of the equations by (-1)
  - b) if you have different coefficients, use the LCM
  - c) if you have different coefficient and same sign, use a combination of both (LCM and -1)
  - d) MULTIPLY EVERY TERM IN THE EQUATION BY YOUR INTEGER
- 3) ADD the equations
- 4) SOLVE for one of the variables
- 5) SUBSTITUTE the variable to solve for the other variable
- 6) WRITE your answer as a coordinate, if possible
- 7) CHECK your answer via substitution

### Chapter 7 Study Sheet (cont):

To Solve ANY Systems Word Problem (five steps):

1. Define **\_variables\_** (look to the **\_\_question\_\_**)!
2. Write a **\_system\_\_** of **\_\_equations\_\_**.
3. Solve the system via **\_\_substitution\_\_** ,  
**\_\_elimination\_\_** or **\_\_graphing\_\_**.
4. Check via **\_\_substitution\_\_** and **\_\_reality/logic\_\_**.
5. Write your answers **as a sentence\_\_**.

Add Any Additional Personal Reminders for Systems Problems Below:

- look for extra points on the test - READ ALL DIRECTIONS
- don't forget to write your answer as a COORDINATE

● **BOX your answer**

